AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A method of determining the degree of lung inspiration in a patient comprising the step of non-invasively detecting the position of the patient's diaphragm by means of an array of at least two ultrasound transducer elements on the patient extending in the direction of the longitudinal (z) axis of the patient over the lung sinus, wherein the position of the diaphragm is determined based upon the difference between the signals received by the individual transducer elements.

2. (Original) A method as claimed in claim 1, wherein the diaphragm position is used as a reference point to define the degree of lung inspiration when an image of the patient is generated and further comprising the step of reproducing that degree of lung inspiration in order to perform a medical or surgical procedure on the patient based on that image.

3. (Original) A method as claimed in claim 2, wherein the diaphragm position is first determined whilst the patient holds his breath and images are generated simultaneously therewith, the degree of lung inspiration subsequently being reproduced by the patient inhaling or inhaling and exhaling until the previously determined diaphragm position is achieved and the desired procedure being then carried out whilst the patient holds his breath.

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) A method as claimed in claim ~~5~~1, wherein the array of ultrasound transducer elements is placed on the patient's lower chest and/or upper abdomen and is moved into a desired position over the lung sinus using feedback from the ultrasound transducer elements.

7. (Currently Amended) An apparatus for monitoring the position of a patient's diaphragm comprising an array of at least two ultrasound transducer elements for placing on the patient in the direction of the longitudinal (z) axis of the patient to extend over the lung sinus, wherein the position of the diaphragm may be determined based upon the difference between signals received by the individual transducer elements.

8. (Cancelled)

9. (Currently Amended) An apparatus as claimed in claim 7 ~~or 8~~, wherein the measured acoustic impedance from each transducer element is used as an input to a processor and acoustic impedance may be processed to provide a function that varies with the movement of the diaphragm in the z-direction.

10. (Previously Presented) A method of performing a biopsy using the method of claim 1.

11. (Previously Presented) A method of radiotherapy comprising providing a source of radiation and directing it at a target area of a patient, wherein the emission of the radiation beam is triggered by means of an apparatus according to claim 7.

12. (Previously Presented) A method of radiotherapy comprising providing a source of radiation and directing it at a target area of a patient, wherein the emission of the radiation beam may be controlled to follow the movement of the target based on the position of the diaphragm as determined by the method of claim 1.

13. (Previously Presented) A radiotherapy apparatus comprising a radiation source and a control unit, the source being mounted on a tracking device and being controlled by a control unit to direct the radiation towards the calculated position of the tumor based on the current measurement of diaphragm position obtained by the method of claim 1.

14. (Previously Presented) A method of monitoring respiration by monitoring the movement of a patient's diaphragm using the method of claim 1.

15-16. (Cancelled)

17. (Previously Presented) A method of performing a biopsy using the apparatus of claim 7.

18. (Previously Presented) A method of radiotherapy comprising providing a source of radiation and directing it at a target area of a patient, wherein the emission of the radiation beam may be controlled to follow the movement of the target based on the position of the diaphragm as determined by the apparatus of claim 7.

19. (Previously Presented) A radiotherapy apparatus comprising a radiation source and a control unit, the source being mounted on a tracking device and being controlled by a control unit to direct the radiation towards the calculated position of the tumor based on the current measurement of diaphragm position obtained by the apparatus of claim 7.

20. (Previously Presented) A method of monitoring respiration by monitoring the movement of a patient's diaphragm using the apparatus of claim 7.

21. (New) An apparatus as claimed in claim 7, wherein the array of transducer elements is a one-dimensional array.